

AMENDMENTS TO THE CLAIMS

Please replace all prior versions and listings of claims with the following listing of claims.

Listing of Claims:

1. (currently amended) A method of forming a mechanical joint, comprising:
providing a studded ball having a ball molded about a stud; and
over-molding the studded ball movably within a desired structure to form the mechanical joint, wherein the studded ball is configured for coupling to a desired mechanical linkage, wherein over-molding comprises providing a desired mold layer about the studded ball, wherein providing the desired mold layer comprises positioning a biased mold assembly about opposite open portions of the desired structure.
2. (previously presented) The method of claim 1, wherein over-molding comprises molding in place the studded ball in the desired structure.
3. (previously presented) The method of claim 1, wherein over-molding comprises self-retaining the studded ball within the desired structure.
4. (original) The method of claim 3, wherein self-retaining comprises injecting mold material into a ball socket about the studded ball.
5. (previously presented) The method of claim 1, wherein over-molding comprises self-tolerancing the studded ball within mold material disposed about the studded ball.
6. (original) The method of claim 5, wherein self-tolerancing comprises reducing mold contraction about, and fixation to, the studded ball.

7. (currently amended) A method of forming a mechanical joint, comprising:
molding a ball about a stud to form a studded ball; and
over-molding the studded ball movably within a desired structure to form the mechanical joint, wherein over-molding comprises creating a temperature differential in which the studded ball is hotter than the desired structure, wherein creating the temperature differential comprises cooling the desired structure.

8. (original) The method of claim 7, wherein creating the temperature differential comprises heating the studded ball.

9. (canceled)

10. (currently amended) ~~The~~ A method of claim 7, forming a mechanical joint, comprising:
molding a ball about a stud to form a studded ball; and
over-molding the studded ball movably within a desired structure to form the mechanical joint, wherein over-molding comprises creating a temperature differential in which the studded ball is hotter than the desired structure, wherein creating the temperature differential comprises solidifying mold material from the desired structure inwardly to the studded ball.

11. (canceled)

12. (currently amended) The method of ~~claim 11~~ claim 1, wherein providing the desired mold layer comprises symmetrically positioning the studded ball within the desired structure.

13. (canceled)

14. (currently amended) The method of ~~claim 13~~claim 1, wherein positioning the spring-loaded mold assembly comprises abutting centering structures against the studded ball and the desired structure.

15. (canceled)

16. (canceled)

17. (currently amended) ~~The A~~ method of ~~claim 65~~, forming a mechanical joint, comprising:

providing a studded ball having a ball molded about a stud, wherein the studded ball is configured for coupling to a desired mechanical linkage; and

over-molding the studded ball movably within a desired structure to form the mechanical joint, wherein over-molding comprises centering the studded ball within the desired structure, wherein centering comprises abutting first and second centering portions of first and second mold structures against the desired structure and the studded ball, respectively, wherein abutting the first centering portion comprises disposing a mold injection nozzle sealingly against a first open portion of the desired structure.

18. (previously presented) The method of claim 1, wherein over-molding comprises injecting mold material and simultaneously pressuring the studded ball against a centering structure to center the studded ball within the desired structure.

19. (previously presented) The method of claim 18, wherein injecting mold material and simultaneously pressuring comprises sealing the studded ball against the centering structure.

20. (currently amended) ~~The A~~ method of ~~claim 65~~, forming a mechanical joint, comprising:

providing a studded ball having a ball molded about a stud, wherein the studded ball is configured for coupling to a desired mechanical linkage; and

over-molding the studded ball movably within a desired structure to form the mechanical joint, wherein over-molding comprises centering the studded ball within the desired structure, wherein centering comprises abutting first and second centering portions of first and second mold structures against the desired structure and the studded ball, respectively, wherein over-molding comprises retracting at least one of the first and second centering portions prior to solidification of the mold material.

21. (previously presented) The method of claim 1, wherein over-molding comprises forming a plurality of molded in place layers about the studded ball.

22. (original) The method of claim 21, wherein forming the plurality of molded in place layers comprises forming at least one low friction layer adjacent the studded ball.

23. (previously presented) The method of claim 1, comprising molding the ball onto the stud to form the studded ball.

24. (currently amended) A molding method for a mechanical joint, comprising:
providing a studded ball having a ball molded about a stud;
injecting mold material into a cavity between the studded ball and a support structure for the studded ball;

substantially centering the studded ball within the support structure, wherein substantially centering comprises abutting first and second centering portions of a symmetrical mold assembly against the support structure and the studded ball, respectively, wherein injecting comprises injecting mold material into the cavity adjacent the first centering portion and simultaneously forcing the studded ball against the second centering portion via fluid pressure of the injected mold material; and

self-tolerancing the studded ball movably within the mold material.

25. (canceled)

26. (canceled)

27. (canceled)

28. (currently amended) The molding method of ~~claim 27~~ claim 24, wherein simultaneously forcing the studded ball comprises fluidly sealing the studded ball against the second centering portion.

29. (original) The molding method of claim 24, wherein injecting comprises automatically retaining the studded ball within the support structure.

30. (original) The molding method of claim 29, wherein automatically retaining comprises solidifying mold material about the studded ball and into a socket in the support structure.

31. (currently amended) ~~The~~ A molding method of ~~claim 24~~, for a mechanical joint, comprising:

providing a studded ball having a ball molded about a stud;
injecting mold material into a cavity between the studded ball and a support structure for the studded ball;

substantially centering the studded ball within the support structure; and
self-tolerancing the studded ball movably within the mold material, wherein self-tolerancing comprises facilitating heat transfer between the studded ball and the support structure via a temperature differential in which the support structure is cooler than the studded ball.

32. (original) The molding method of claim 31, wherein facilitating heat transfer comprises cooling the mold material inwardly from the support structure to the studded ball.

33. (currently amended) ~~The~~ A molding method of claim 24, for a mechanical joint, comprising:

providing a studded ball having a ball molded about a stud;

injecting mold material into a cavity between the studded ball and a support structure for the studded ball;

substantially centering the studded ball within the support structure; and

self-tolerancing the studded ball movably within the mold material, wherein injecting mold material comprises molding in place the studded ball in the support structure.

34. (currently amended) ~~The~~ A molding method of claim 24, for a mechanical joint, comprising:

providing a studded ball having a ball molded about a stud;

injecting mold material into a cavity between the studded ball and a support structure for the studded ball;

substantially centering the studded ball within the support structure; and

self-tolerancing the studded ball movably within the mold material, wherein injecting mold material comprises forming at least one molded in place layer having a low friction surface adjacent the studded ball.

Claims 35-51 (canceled)

52. (currently amended) A method of forming a mechanical joint, comprising:

centering a studded ball having a ball molded about a stud;

independently centering a desired structure relative to the studded ball; and

injecting mold material between the studded ball and the desired structure, wherein centering and independently centering comprise abutting first and second centering structures

against the desired structure and the studded ball, respectively, wherein abutting comprises biasing the first and second structures inwardly toward one another.

53. (canceled)

54. (currently amended) ~~The A method of claim 53, forming a mechanical joint,~~
comprising:

centering a studded ball having a ball molded about a stud;

independently centering a desired structure relative to the studded ball; and

injecting mold material between the studded ball and the desired structure, wherein centering and independently centering comprise abutting first and second centering structures against the desired structure and the studded ball, respectively, wherein abutting comprises:

engaging the first centering structure against the desired structure at a first end of the desired structure; and

contacting the second centering structure against the studded ball adjacent a second end of the desired structure.

55. (canceled)

56. (previously presented) The method of claim 52, wherein injecting comprises molding comprises molding in place the studded ball in the desired structure.

57. (previously presented) The method of claim 52, comprising positioning a spring-loaded mold structure at an open portion of the desired structure.

58. (currently amended) ~~The A method of claim 52, forming a mechanical joint,~~
comprising:

centering a studded ball having a ball molded about a stud;

independently centering a desired structure relative to the studded ball; and

injecting mold material between the studded ball and the desired structure, where
injecting mold material comprises pressurably biasing the studded ball toward a centering structure.

59. (previously presented) A method of forming a mechanical joint, comprising:
providing a studded ball in an oversized socket;
creating a temperature differential in which the temperature of the studded ball is greater than the temperature of the socket; and
injecting mold material into the oversized socket about the studded ball.

60. (previously presented) The method of claim 59, wherein creating the temperature differential comprises heating the studded ball.

61. (previously presented) The method of claim 59, wherein creating the temperature differential comprises cooling the oversized socket.

62. (previously presented) The method of claim 59, wherein creating the temperature differential comprises facilitating cooling of the mold material from the oversized socket inwardly to the studded ball.

63. (previously presented) The method of claim 59, wherein creating the temperature differential comprises reducing contraction of the mold material onto the studded ball during solidification.

64. (canceled)

65. (canceled)

66. (canceled)

67. (previously presented) The method of claim 1, wherein providing and over-molding comprise molding a plastic ball onto a metallic stud and over-molding a plastic material about the plastic ball movably within the desired structure.

68. (previously presented) The method of claim 1, comprising assembling the mechanical joint into a vehicle.

69. (previously presented) The method of claim 1, comprising assembling the mechanical joint into a suspension system.

70. (previously presented) The method of claim 59, wherein providing and injecting comprise molding a plastic ball onto a metallic stud and over-molding a plastic material about the plastic ball movably within the desired structure.

71. (previously presented) The method of claim 59, comprising assembling the mechanical joint into a vehicle.

72. (previously presented) The method of claim 59, comprising assembling the mechanical joint into a suspension system.